

Reduced Impact Logging (RIL)



Changing Timber Harvest Methods

With the growing recognition that many conventional industrial logging practices damage forest productivity and health, many forward-looking companies, government officials, researchers and non-governmental organizations (NGOs) are actively exploring alternative approaches to reduce environmental impacts. Reduced Impact Logging (RIL) is the “planned and carefully controlled harvest of timber in a way that minimizes impacts on forest stands and on soil.” In order to promote the greater adoption of RIL techniques, the United Nations Food and Agriculture Organization (FAO) produced a [model code of forest harvesting practice](#).

The standard RIL prescriptions include:

- defining the minimum length of the cutting cycle – generally a 20 year minimum;
- conducting a pre-harvest inventory;
- limiting the amount of stand basal area that may be removed to one third;
- building access roads and cutting vines well in advance;
- minimizing the number of skid trails for log removal, linking felling directions to them, and using minimal size landings;
- conducting logging operations only under favorable conditions, e.g., dry soils;
- training staff; and
- conducting post-harvest assessment.

Costs and benefits of RIL

In many developing countries, RIL is seen as a first step toward obtaining independent forest product certification. Although it can be cost effective, there can be large up-front costs for planning and training of staff.

Evidence demonstrates that several factors help determine whether the benefits exceed the costs of RIL. Some of these factors include site-specific conditions, the costs and benefits considered relevant, and the time frame involved. In general, RIL is more expensive than conventional logging if only operational costs and short-term benefits are considered. However, regeneration is enhanced, allowing for earlier re-entry, and more sustainable future harvest of higher-quality commercial wood is made possible.

Forest managers see benefits in higher future yields and sustained productivity. These may or may not be relevant to the timber company operator, depending on whether the company has long-term access rights, and whether laws are enforced to curtail illegal logging. Financial benefits are also derived from the reduction of waste and breakage, which is usually not counted

in conventional logging, and from lower costs of damages such as soil disturbance. Whether the latter are counted will depend on whether companies are held accountable for them.

In the Eastern Amazon of Brazil, a [comparison of case studies](#) from 3 sites showed that estimates of net revenue from RIL ranged from 18 percent to 35 percent higher than from conventional logging. In [Sabah Malaysia](#), estimates were 62 percent lower, primarily because of reduced timber yield rather than extraction costs. The relative costs of implementation can also be much higher when compared to illegal logging practices that occur when regulations for conventional logging are not enforced.

Constraints

The major constraints and disincentives to RIL adoption are:

- high perceived costs combined with lack of awareness and appreciation of the benefits;
- lack of interest in forest management;
- lack of tenure security necessary to benefit from future yields;
- lack of trained and experienced personnel and proper equipment;
- lack of appropriate policies and incentives;
- high costs of implementation relative to widespread illegal practices that make available cheap wood;
- lower timber yield;
- poor market access;
- low volume of valuable species; and
- lack of credit availability.

In general, greater use of RIL is found in large well-organized and vertically integrated companies that have fewer of these constraints.

Incentives

The above constraints suggest that the following factors can help motivate the adoption of RIL:

- enforcement of laws and regulations for conventional logging;
- full-cost accounting to demonstrate that RIL is efficient and has lower costs;
- moving toward compliance with certification standards, increasing access to international markets and green consumers;
- enhancing tenure security;
- providing subsidized training, technical assistance, access to credit, and supportive demonstration projects; and
- public pressure for more sustainable products.

Recent developments

To begin to overcome the constraints to RIL adoption, the International Tropical Timber Organization (ITTO) has supported [35 training and demonstration projects](#) that include several training centers. In [Bolivia](#), RIL is now legally required as part of sustainable forest management.

An Indonesian pilot project in the [Bulungan Research Forest](#) resulted not only in reduction of damage and increased productivity, but changed attitudes in neighboring concessions, a sense of professional pride and competitiveness among logging crews. RIL came to be seen as a way to increase efficiency. The company then decided to harvest five additional blocks using RIL techniques. This project developed clear guidelines specific to the concession, trained staff in technical skills necessary to implement them, assessed costs and benefits compared with conventional logging, and co-managed the transition to self-implementation.

An innovative way to cover the up-front costs of training and implementation was demonstrated in a [joint venture in Sabah Malaysia](#), where initial RIL costs were covered by a foreign utility in exchange for the carbon credits. In a particular area of a forest concession owned by the Innoprise Corporation Sdn. Bhd (ICSB), New England Power (NEP), an electric utility based in the U.S., will have rights to the carbon savings that result from adoption of RIL, and ICSB will benefit from improved management techniques. Independent verification is conducted by an Environmental Audit Committee that includes representatives from an NGO and from the research community, based on guidelines developed by the [Forest Stewardship Council](#). In this project, 1400 hectares were logged with RIL techniques that had additional costs estimated at \$5 per m³ of timber harvested, or approximately 5 percent of the average value of logs in log yards, also the equivalent of 0.04 percent of retail value of the wood in Europe. As a result, environmental impacts were reduced by 50 percent.

Innovative policy makers who want to utilize public forests more efficiently and improve forest management can help disseminate experiences from other parts of the world, and promote projects to encourage RIL practices.

Organizations

[CIFOR](#) Center for International Forestry Research – conducts applied research on RIL.

[FAO Forest Harvesting Bulletin](#) – provides technical reports on sound forest harvesting.

[ITTO Tropical Forest Update](#), Vol. 11, No. 2, 2001. *Catching up on Reduced Impact Logging*.

[RILNET](#) – Reduced Impact Logging Information Exchange, an e-mail listserv operated by Tan and Associates for the Asia-Pacific Forestry Commission (APFS) supported by FAO and USDA Forest Service.

[Tropical Forest Foundation](#) demonstrates and teaches sustainable forest management through Reduced-Impact Logging.

Key references

Bull G., Pulkki, R. Killmann S. and Schwab O., 2001. [Does it cost or does it pay? An investigation of the costs and benefits of reduced impact logging](#). ITTO newsletter. Vol. 11, No. 2.

Durst, P.B. and Enters T. 2001. [Illegal logging and the adoption of reduced impact logging](#). Paper presented at the Forest Law Enforcement and Governance: East Asia Regional Ministerial Conference, 11-13 September 2001, Denpasar, Indonesia.

Pulkki, R., G. Bull and O. Schwab. 2001. [Literature Review on Logging Impacts in Moist Tropical Forests](#). Rome: FAO, Forest Products Division. Appendix contains annotated literature review of 266 sources.

Moura-Costa, Pedro, and John Tay. 1996. [Reduced-Impact Logging Project in Sabah, Malaysia](#). Paper read at International Workshop on the Integrated Application of Sustainable Forest Management Practices in Support of Intergovernmental Panel of Forest Commission on Sustainable Development, November 22-25, 1996, at Kochi, Japan.

Dykstra, D. 1996. [Buying Carbon to Promote Reduced Impact Logging](#). CIFOR, Bogor, Indonesia.

Holmes T.P., Blate, G.M., Zweede, J.C., Pereira Jr. R., Barreto P., Boltz F. and Bauch R. (undated) [Financial Costs and Benefits of Reduced-Impact Logging in the Eastern Amazon](#). Tropical Forest Foundation in collaboration with USAID, USFS, CIFOR, and ITTO.

Holmes, T.P., Boltz, F., and Carter, D.R. 2001. [Financial indicators of reduced impact logging performance in Brazil: case study comparisons](#). Paper presented at International Conference on Application of Reduced Impact Logging to Advance Sustainable Forest Management: Constraints, Challenges and Opportunities, 26 February to 1 March 2001, Kuching, Sarawak, Malaysia.